

In The Claims:

1. (Currently Amended) A support for an anode system in contact with a molten salt bath in an electrolysis apparatus, said support comprising a 50% to 95% dense castable refractory subject to thermal shock and attack by gases from the bath, where the refractory comprises refractory material and from 2 wt% to 20 wt.% of metal fibers, where the metal fibers are from 1 cm to 4 cm long and have a length to thickness ratio of 500:1 to 20:1, and where no more than 20 fibers per sq. cm. on average protrude through the outer side of the support.
2. (Original) The support of Claim 1, comprising at least 55% of alumina castable refractory.
3. (Original) The support of Claim 1, wherein the metal fibers are selected from the group consisting of stainless steel, nickel alloy, copper alloy and mixtures thereof.
4. (Original) The support of Claim 1, wherein the metal fibers are stainless steel and the metal fibers have a coating comprising an oxide of phosphorous.
5. (Currently Amended) The support of Claim 1, wherein the metal fibers have cross over points, a concave cross-section, and are present in a range of from 3 wt.% to 10wt.% and where no more than 10 fibers per sq. cm. on average protrude through the outer side of the support.
6. (Original) The support of Claim 1, wherein the electrolysis apparatus is an aluminum producing apparatus, the molten metal salt bath is molten cryolite at about 850°C to 1050°C, and the gases include HF and O₂.

7. (Currently Amended) A support assembly for an inert anode system comprising at least one inert anode in contact with a molten salt bath in a metal electrolysis apparatus, where the at least one inert anode is attached to a support system having an outer side subject to thermal shock and attack by gases from the bath, the support system consisting essentially of a 50% to 95% dense castable refractory material having from 2 wt% to 20 wt% of metal fibers dispersed therethrough, where the fibers are from 1 cm to 4 cm long, and where no more than 20 fibers per sq. cm. on average protrude through the outer side of the support system.

8. (Original) The support assembly of Claim 7, comprising at least 55% alumina castable refractory.

9. (Original) The support assembly of Claim 7, wherein the metal fibers are selected from the group consisting of stainless steel, nickel alloy, copper alloy and mixtures thereof.

10. (Original) The support assembly of Claim 7, wherein the metal fibers are stainless steel and the metal fibers have a coating comprising an oxide of phosphorus.

11. (Currently Amended) The support assembly of Claim 7, wherein the metal fibers have cross over points, a concave cross-section ~~and~~ , a length to thickness ratio of 500:1 to 20:1, and are present in a range of from 3 wt.% to 10 wt.% and where no more than 10 fibers per sq. cm. on average protrude through the outer side of the support system.

12. (Original) The support assembly of Claim 7, wherein the electrolysis apparatus is an aluminum producing apparatus, the molten salt bath is molten cryolite at about 850°C to 1050°C, and the gases include HF and O₂.

13. (Original) The support assembly of Claim 7, wherein the support consists essentially of 3 wt.% to 10 wt.% stainless steel fibers and from about 1 wt.% to about 45 wt.% filler, with the remainder a mixture of an Al₂O₃, SiO₂, CaO material system having a maximum service temperature of at least 1200°C.

14. (Original) The support assembly of Claim 7, wherein the fibers have a non-circular cross-section and have a generally random dispersal arrangement to themselves, the fibers are present at from about 3 wt% to 10 wt.% and the support system is 50% to 95% dense.

15. (Original) The support assembly of Claim 7, wherein the fibers have a length to thickness ratio of 100:1 to 50:1

16. (Currently Amended) The support assembly of Claim 10, wherein the ~~phosphate~~ oxide of phosphorus coating is from about 0.5 nanometers to about 5 nanometers thick.

17. (Currently Amended) An electrolytic reduction cell for the production of aluminum comprising at least one inert anode attached to a castable refractory support where the anodes and support are in contact with a molten salt bath in an electrolysis apparatus, where the support comprises a 50% to 95% dense castable refractory subject to thermal shock and attack by gases from the bath, where the refractory comprises refractory material and from 2 wt.% to 20 wt.% of metal fibers, where the metal fibers have cross over points, are from 1 cm to 4 cm long and have a

length to thickness ratio of 500:1 to 20:1, and where no more than 20 fibers per sq. cm on average protrude through the outer side of the support, minimizing contact with both gases and fiber degradation to filter cross over points, where the fibers help stop crack propagation caused by thermal shock.

18. (Original) The cell of Claim 17, wherein the support comprises at least 55% of alumina castable refractory.

19. (Original) The cell of Claim 17, wherein, in the support, the metal fibers are selected from the group consisting of stainless steel, nickel alloy, copper alloy and mixtures thereof.

20. (Original) The cell of Claim 17, wherein, in the support, the metal fibers are stainless steel and the metal fibers have a coating comprising an oxide of phosphorus.

21. (Currently Amended) The cell of Claim 17, wherein, in the support, the metal fibers have a concave cross-section, and are present in a range from 3 wt.% to 10 wt.% and where no more than 10 fibers per sq. cm. on average protrude through the outer side of the support.

22. (Original) The cell of Claim 17, wherein the electrolysis apparatus is an aluminum producing apparatus, the molten metal salt bath is molten cryolite at about 850°C to 1050°C, and the gases include HF and O₂.

23. (Currently Amended) An electrolytic process for making a metal where an electrolyte reduction cell comprising at least one inert anode is attached to a castable refractory support where the anodes and support contact a molten salt bath in an electrolysis apparatus at up to about 1000°C and where corrosive gases contact the

inert anode and the support, and where metal is deposited from the molten salt bath, where said support comprises a 50% to 95% dense castable refractory subject to thermal shock and attack by gases from the bath, where the refractory comprises refractory material and from 2 3 wt.% to 20 10 wt.% of metal fibers, where the metal fibers have cross over points, are from 1 cm to 4 cm long and have a length to thickness ratio of 500:1 to 20:1, and where no more than 20 fibers per sq. cm. on average protrude through the outer side of the support, minimizing contact with both gases and fiber degradation to fiber cross over points, where the fibers help stop crack propagation caused by thermal shock.